SECTION 00865

DELINEATORS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Delineators, Type I and Type II.

B. Culvert and maintenance markers.

C. Freeway turnaround markers.

1.2 RELATED SECTIONS

A. Section 00860: Pavement Marking Paint

1.3 REFERENCES

A. AASHTO M 111: Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products

B. AASHTO M 268: Retroreflective Sheeting for Traffic Control

C. ASTM A 1011: Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability

D. ASTM D 638: Tensile Properties of Plastics

E. ASTM G 23: Operating Light-Exposure Apparatus (Carbon-Arc Type) With and Without Water for Exposure of Nonmetallic Materials

F. Military Specification MIL-M 43719B

G. Standard Specifications for Construction of Road and Bridges on Federal Highway Projects, FP-92, Type III

PART 2 PRODUCTS

2.1 STEEL POSTS

A. Supply and galvanize posts as specified. ASTM A 1011, and AASHTO M 111.

B. Use flanged, channel-shaped steel posts that weight 2 lbs/ft.

C. Make all cuts before galvanizing posts. Follow GW 9 Standard Drawing.

2.2 FLEXIBLE POSTS

A. Free of burns, discoloration, contamination, and other defects.

B. Remains flexible at temperatures from -5 degrees F to +140 degrees F.

C. Capable of being driven into an earth shoulder with or without a pilot hole.

D. Tensile strength of 1100 psi. ASTM D 638.

2.3 QUALITY CONTROL - FLEXIBLE POST TESTING

A. Meet Cold Bend Test:
   1. Subject two posts to a temperature of -10 degrees F, ± 5 degrees F for at least four hours.
   2. Immediately bend each post four times through a 90 degree angle around a 2 inch mandrel.
   3. Each post must return to its original straight configuration within a ± 10 degree angle within five minutes at the end of the four bends.
   4. Any cracking or significant loss of rigidity are grounds for failure.

B. Meet Hot Bend Test:
   1. Subject two posts to a temperature of 100 degrees F ± 5 degrees F for at least four hours.
   2. Satisfy all bending and physical requirements specified in the Cold Bend Test.

C. Meet Impact Resistance Test:
   1. Subject post to impacts by a typical sedan as follows:
      a. Three hits - 0 degree angle at 0 degrees F.
      b. Three hits - 0 degree angle at 100 degrees F.
      c. Ten hits - 0 degree angle at 35 mph.

d. Five hits - 15 degree angle at 55 mph.

2. Acceptable results:
   a. Installed post remain intact, securely anchored and within ± 10 degrees of vertical orientation.
   b. Installed post shows minimal signs of cracking or loss of rigidity.
   c. Installed post retains at least 50 percent of its reflective sheeting.
   d. Impact vehicle suffers little or no damage during the impact test.

D. Exposure:
   1. Expose the specimens for 500 hours in a carbon arc-type apparatus following ASTM G 23, Method 1.
   2. Acceptable results:
      a. Exposure does not result in delamination, distress, or discoloration.
      b. Sheeting is not removable from the specimens without damage.
      c. Post is resistant to ultraviolet light, ozone, hydrocarbons, and other weathering.

2.4 SHEETING

A. Select from Accepted Products Listing (APL) maintained by the UDOT Research Division.

B. Reflective sheeting: Encapsulated lens sheeting or encapsulated lens (flexible) as specified. Standard Specifications for Construction of Road and Bridges on Federal Highway Projects, FP-92, Type III. Refer to AASHTO M 268.

C. Non-reflective sheeting: As specified. Military Specification MIL-M 43719B, Type I, Class I.

2.5 PAINT

A. Refer to Section 00860.

END OF SECTION